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**(54) PET FOODS**

(57) A pet food containing a cyclodextrin such as  $\beta$ -cyclodextrin, such as a dog food and a cat food. For example, a pet food in which a content of fat is equal to or higher than 5 % by weight per solid part and a content of  $\beta$ -cyclodextrin ranges from 1 to 15 % by weight per solid part. A method of suppressing an increase of a body weight of a pet or reducing the body weight, characterized by feeding the aforementioned pet food to a pet to the extent that an ingested amount of  $\beta$ -cyclo-

dextrin ranges from 0.1 to 5 g per 1 kg of body weight for one day. It is possible to provide a novel pet food which is suited to a liking of a pet because of having the same taste and mouth-feeling as conventional pet foods, and which can suppress an increase of a body weight of a pet or reduce the body weight with the same feeding amount as conventional, and a method which can suppress an increase of a body weight of a pet or reduce the body weight without impairing health of pets.

**EP 1 120 046 A1**

## Description

## Technical Field

[0001] The present invention relates to a pet food, more specifically, a pet food which is easily suited to a liking of a pet because of having the same taste and mouth-feeling as conventional pet foods and which has a diet effect. The present invention further relates to a method which suppresses an increase of a body weight of a pet or reduces a body weight of a pet by using the pet food of the present invention.

## Background Art

[0002] Recently, there are a lot of cases that pets, for example, dogs and cats, are tenderly bred like a family and many kinds of pet foods which are suited to each animal are on the market. These pet foods are prepared under the consideration of nutritive values and the liking of pets. However, diseases such as obesity and diabetes are frequently occurred due to insufficient exercise and overeating, thereby causing serious problems to keepers.

[0003] Therefore, in order to suppress overeating, it has been done that the feeding amount is reduced or a pet food containing a dietary fiber in the prescribed amount is fed. However, if the feeding amount is reduced, health may be impaired. In addition, the pet food containing the prescribed amount of dietary fiber is not suited to a liking of a pet, so that the eating amount is reduced, thereby also causing impairment of health.

[0004] Therefore, an object of the present invention is to provide a novel pet food which is suited to a liking of a pet because of having the same taste and mouth-feeling as conventional pet foods, and which can suppress an increase of a body weight of a pet or reduce the body weight with the same feeding amount as conventional.

[0005] Further, an object of the present invention is to provide a method which can suppress an increase of a body weight of a pet or reduce the body weight without impairing health of a pet.

[0006] A pet food with the aim of suppressing an increase of body weight or reducing a body weight has not been known so far. For example, disclosed in Japanese Unexamined patent Publication (KOKAI) Helsei No.6-217,710 is a pet food with the aim of preventing and treating skin diseases of pets. In this publication, disclosed is cyclodextrin, which is used as a component of a pet food of the present invention as one of vehicles, as described below. However, in this publication, there is no mention that cyclodextrin is used for the purpose of suppressing an increase of a body weight or reducing a body weight.

[0007] In addition, the research on the influence of cyclodextrin on eating disorder of rats was reported (for example, Ryoichi Mori, Mitsuhiro Furus, and Junichi Okumura, 1997, "Influence of cyclodextrin on mem-

brane components and absorption functions of small intestine mucous membrane in rat", p.129, The 92nd meeting of Japanese Society of Animal Science). However, results obtained from the research on rats which are omnivorous and have no gall as well as degraded cyclodextrin by fermentation in the large intestine can not be applied, as they are, to dogs or the like which are carnivorous and has no gall as well as cannot degrade cyclodextrin because the large intestine is not developed.

## Summary of the Invention

[0008] The present invention is a pet food comprising a cyclodextrin, preferably  $\beta$ -cyclodextrin.

[0009] In particular, the pet food of the present invention is a dog food or cat food, further it can be a jerky or an object food.

[0010] Further, the pet food of the present invention preferably comprises fat in an amount equal to or higher than 5 % by weight per solid part, as well as  $\beta$ -cyclodextrin in an amount ranging from 1 to 15 % by weight per solid part.

[0011] In addition, the present invention relates to a method which suppresses an increase of a body weight of a pet or reduces the body weight, characterized in that the aforementioned pet food of the present invention is fed to a pet. The present invention further relates to a method which suppresses an increase of a body weight of pets or reducing a body weight, characterized in that the pet food according to any of Claims 1 to 5 is fed to a pet so as to ingest  $\beta$ -cyclodextrin in an amount ranging from 0.1 to 5 g per 1 kg of body weight for one day.

## Brief description of the drawings

[0012]

Figure 1 illustrates the results of Example 1 (body weight change); and

Figure 2 illustrates the results of Example 2 (body weight change).

## Best mode for carrying out the Invention

[0013] The pet food of the present invention contains a cyclodextrin. As for the cyclodextrin, publicly known ones can be used and preferred is  $\beta$ -cyclodextrin.

[0014] The pet food of the present invention can be a dog food for dogs or a cat food for cats, which is particularly suffered from a lot of problems such as obesity. In addition, pet foods can be classified into a general food which is fed as a normal meal, a jerky which is fed as a snack and an object food which contains a specific component used for pets suffered from diseases (or in which the content of the specific component is limited). It is appropriate that the pet food of the present invention

5% Fat / solid

1-15% CD / solid

CD : Fat

5 : 1 - 1 : 3

new invention

CD : Fat

1 : 20 -

1 : 3

pref.

1 : 3 - 1 : 5

1 : 4

is the jerky or the object food.

[0015] It is generally mentioned that obesity is caused by snacks and feeding jerkies in an excessive amount. If pets cheerfully eat, the keepers tend to feed snacks exceeding the defined amount in spite of an instruction of products (pet foods). Because the jerky which is the pet food of the present invention has the effect of suppressing an increase of a body weight or reducing the body weight, obesity is suppressed even if it is excessively eaten.

[0016] In addition, many object foods, which are used for the main purpose of diet, are not suited to a liking of a pet so far, such as those containing a lot of plant fiber, so that the appetite of a pet is lowered, thereby a pet falls into ill health in some cases. However, because the object food which is the pet food of the present invention has the same taste and mouth-feeling as the conventional pet foods, it is suited to a liking of a pet. Further, it can be given a flavor utilizing the inclusion effect of cyclodextrin, if necessary.

[0017] The pet food of the present invention can contain proteins, fats, carbohydrates and fibers as well as inorganic substances such as calcium, phosphorus, sodium, potassium, magnesium and chloride.

[0018] Moreover, flavors which are included in cyclodextrin can be added to the pet food of the present invention. The flavors included in cyclodextrin is hardly deteriorated by heat, so that if added to jerkies which are subjected to heat-treatment during molding or object foods which are subjected to heat-treatment for sterilization, deterioration of flavors can be suppressed.

[0019] In particular, if the pet food of the present invention is a dog food or a cat food, it is preferable that the content of fat is equal to or higher than 5 % by weight per solid part, preferably from 10 to 30 % by weight, as well as the content of  $\beta$ -cyclodextrin ranges from 1 to 15 % by weight per solid part, preferably from 2 to 10 % by weight. This is because dogs and cats like fat since they are carnivorous, as well as fat causes obesity, so that it is possible to prevent obesity and diet by incorporating  $\beta$ -cyclodextrin even if fed a pet food containing relatively large amount of fat.

[0020] The pet food of the present invention is fed in an appropriate amount under the consideration whether a pet is in or after the growing stage, further under the consideration of health condition and necessity of reducing a body weight of a pet, and components contained in the pet food of the present invention other than cyclodextrin. If the feeding amount per 1 kg of body weight is the same, an increase of body weight may be suppressed in one case, or a body weight is reduced in the other case depending on the condition of pets, the other components in the pet food and the content thereof. It is appropriate that the pet food of the present invention is divided in 1 to 3 portions per one day and then fed to the extent that the ingested amount ranges from 0.1 to 5 g, preferably from 0.3 to 2.5 g per 1 kg of body weight in the case of  $\beta$ -cyclodextrin, and with consid-

eration that the object of using the present invention is either prevention of obesity (promoting the increase of body weight) without necessity of reducing the body weight or reducing the body weight.

[0021] The method of the present invention is a method by which an increase of a body weight of a pet is suppressed or the body weight is reduced, characterized in that the aforementioned pet food of the present invention is fed to a pet. As described above, even if cyclodextrin is fed in the same amount per 1 kg of body weight, an increase of a body weight of a pet may be suppressed in one case, or the body weight is reduced in the other case depending on the condition of pet and the other components in the pet food. Therefore, in the method of the present invention, it is appropriate that the pet food of the present invention is divided in 1 to 3 portions per one day and then fed to the extent that the ingested amount ranges from 0.1 to 5 g, preferably from 0.3 to 2.5 g per 1 kg of body weight in the case of  $\beta$ -cyclodextrin, under the consideration whether suppressing the increase of body weight of pet is aimed or reducing the body weight of pet is aimed.

#### Examples

[0022] The present invention will be further described in the following examples.

#### Example 1 (Experiments on suppression of obesity)

[0023] Ten healthy beagles were divided in 2 groups consisting of 5, respectively. Hills c/d Dry were fed for 1 week before the experiment. As for feeds in this experiment, the one in which 200 g of Hills c/d Dry blended with 117 g of lard was used as a basic feed. In the reference group, the one in which 34 g of cornstarch was added to the above basic feed is used. In the experimental group, used is the same one as used in the reference group except that all corn starch was replaced with 23.4 g of  $\beta$ -CD ( $\beta$ -cyclodextrin). The feeding amount for one dog per one day was controlled without changing the ratio of components so that the amount of the basic feed (Hills c/d Dry and lard) is about 400 kcal per metabolic body weight (kg<sup>0.75</sup>).

[0024] Results are shown in Figure 1. In Figure 1, \* means that each value is significantly lower than that of the reference group. As seen from the results in Figure 1, on beagles fed with a pet food containing  $\beta$ -CD, the increase of a body weight is significantly suppressed:

[0025] It is to be noted that Hills c/d Dry has the following composition (%);

Protein	20.20
Fat	19.50
Carbohydrate	46.20
Fibers	2.80
Calcium	0.60

So same  
no. of calories  
ratio of components  
same. So did  
test group get  
more food to  
make up for  
corn starch.

200g Food  
117g lard  
34g cornstarch  
23.4g CD

5% Fat

373 Fat / 200g Food  
73 Fat / 117g lard

(continued)

Phosphorus	0.45
Sodium	0.26
Potassium	0.43
Magnesium	0.10
Chloride	0.44
Metabolic energy	(4.24 kcal/g)

## Example 2 (Experiments on solution of obesity)

[0026] Ten beagles were fed high-energy foods for 2 months before the experiment, so that they became obesity. At the beginning of the experiment, they were divided in four groups so as to uniform the average body weight of each group as much as possible. The feed used in the reference group was the same as that of Experiment 1 and the feed in which 23.4 g of corn starch in the reference group was replaced with  $\beta$ -CD was used in  $\beta$ -CD group. The feeding amount for one dog per one day was controlled without

of Claims 1 to 7 to a pet.

9. A method of suppressing an increase of a body weight of a pet or reducing the body weight, characterized by feeding the pet food according to any of Claims 1 to 7 to a pet to the extent that an ingested amount of  $\beta$ -cyclodextrin ranges from 0.1 to 5 g per 1 kg of body weight for one day.

10. The method according to Claim 9, wherein the pet food is fed to the extent that an ingested amount of  $\beta$ -cyclodextrin ranges from 0.3 to 2.5 g per 1 kg of body weight for one day.

by weight animal  
NOT  
by weight of  
fat ingested

## Claims

1. (Amended) A pet food used for suppressing an increase of a body weight of a pet or reducing a body weight of a pet, which comprises a cyclodextrin.

2. The pet food according to Claim 1, wherein the cyclodextrin is  $\beta$ -cyclodextrin.

3. The pet food according to Claim 1 or 2, which is a dog food or a cat food.

4. The pet food according to any of Claims 1 to 3, which is a jerky or an object food.

5. The pet food according to any of Claims 1 to 4, wherein a content of fat is equal to or higher than 5 % by weight per solid part and a content of  $\beta$ -cyclodextrin ranges from 1 to 15 % by weight per solid part.

6. The pet food according to any of Claims 1 to 5, wherein a content of fat ranges from 10 to 30 % by weight per solid part and a content of  $\beta$ -cyclodextrin ranges from 1 to 15 % by weight per solid part.

7. The pet food according to any of Claims 1 to 6, wherein a content of fat ranges from 10 to 30 % by weight per solid part and a content of  $\beta$ -cyclodextrin ranges from 2 to 10 % by weight per solid part.

8. A method of suppressing an increase of a body weight of a pet or reducing the body weight, characterized by feeding the pet food according to any

what is it  
by weight of  
the food (total) [6.9% EX. 1]  
higher by total weight

FIGURE 1

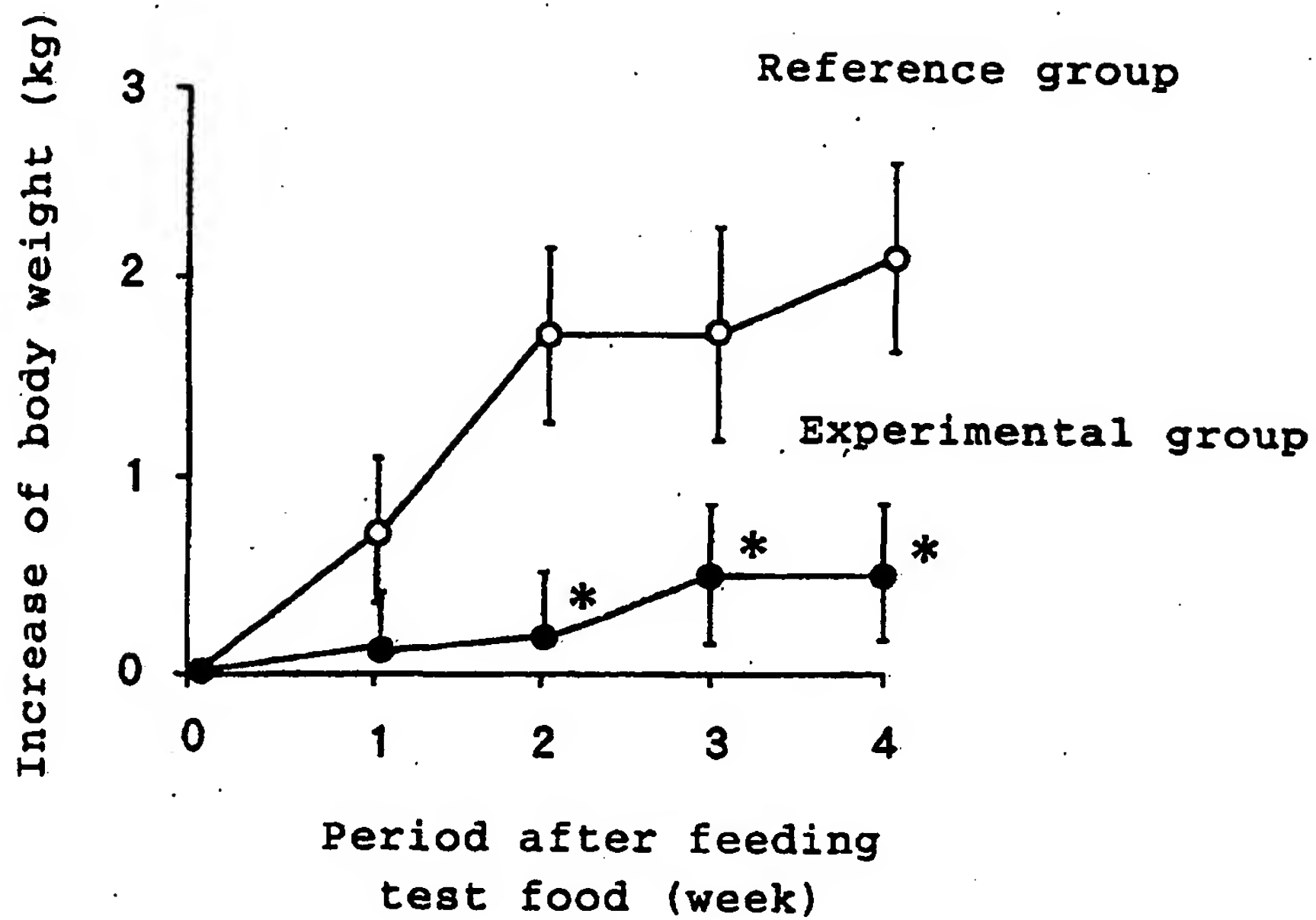


Figure 2

